

Claims:

1. A flat vibration motor comprising:

an upper case;

5 a lower case;

a conductive substrate formed on an upper surface of the lower case;

a magnet formed on the upper surface of the lower case, for generating magnetic field;

10 a conductive brush having an end electrically connected with the substrate;

a rotational shaft supported at an approximate center portion between the lower case and the upper case;

15 a rotator inserted onto the rotational shaft to rotate and formed of a resin base;

a commutator formed on a lower surface of the rotator and connected to the other end of the brush; and

a coil having an upper end, which is positioned lower than an upper end of the rotator;

20 wherein the rotator is made of insert injection molding in which the coil is placed.

2. The flat vibration motor of claim 1, wherein the coil is fixed to the base by an insert injection molding.

25 3. The flat vibration motor of claim 1, further comprising a weight formed eccentrically inside the rotator, for enhancing eccentricity of weight center of the rotator.

30 4. The flat vibration motor of claim 1, wherein the coil is fixed by the base.

5. The flat vibration motor of claim 1, wherein the coil is received inside the base so that the coil is firmly fixed when heated.

5 6. The flat vibration motor of claim 1, wherein the coil is received inside the base so that the coil is not observed at an upper surface of the rotator.

7. A flat vibration motor, comprising:

10 a case;

a rotational shaft standing at a center portion of the case;

a rotator formed upon a circumference of the rotational shaft and made of resin;

15 a coil recessed into the rotator so that the coil is firmly fixed when heated; and

a power supply means for supplying a predetermined electric power to the coil.

!0 8. The flat vibration motor of claim 7, wherein the coil is formed on the base by insert injection molding.

9. The flat vibration motor of claim 7, further comprising:

5 a weight formed eccentrically inside of the rotator, for enhancing eccentricity of weight center of the rotator.

10. The flat vibration motor of claim 7, wherein the coil has an upper portion formed at a position lower than an upper portion of the rotator so that the coil is firmly fixed when heated.

0 11. The flat vibration motor of claim 7, wherein the power supply means comprises:

a substrate formed on a surface of the case; and
a brush having both ends connected to the substrate and
the rotator.

5 12. The flat vibration motor of claim 7, wherein the
power supply means comprises:

 a lower insulating fixer formed on a surface of the
case;

 a conductive terminal formed a lower surface of the
10 lower fixer; and

 a brush penetrating the lower fixer and having both
ends connected to the terminal and the rotator.

 13. A flat vibration motor, comprising:

15 an upper case having an open lower side;

 a lower insulating fixer formed on the lower side of
the upper case;

 a magnet formed on an inner bottom surface of the upper
case, for generating magnetic field;

20 a rotational shaft standing at a center portion of the
upper case and the lower fixer;

 a rotator inserted onto the rotational shaft and formed
of base made of resin, for rotating;

25 a conductive terminal formed a lower side of the lower
fixer;

 a brush penetrating the lower fixer and having an end
connected to the terminal and the other end connected to a
commutator formed on a lower side of the rotator; and

30 a coil having an upper portion formed at a position
lower than an upper portion of the rotator.

 14. The flat vibration motor of claim 13, wherein the
coil is formed on the base by insert injection molding.

15. The flat vibration motor of claim 13, further comprising:

a weight formed eccentrically inside of the rotator, for enhancing eccentricity of weight center of the rotator.

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16. The flat vibration motor of claim 13, wherein the coil is received inside the base so that the coil is firmly fixed when heated.

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17. The flat vibration motor of claim 13, wherein the coil is received inside the base so that the coil is not observed at an upper surface of the rotator.

18. A flat vibration motor, comprising:

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a case;

a rotational shaft standing inside the case;

a rotator placed upon a circumference of the rotational shaft;

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a coil received in the rotator so that the coil is not exposed to exterior; and

a commutator and a brush for supplying a predetermined electric power to the coil;

wherein the rotator is made of insert injection molding in which the coil is placed.

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19. The flat vibration motor of claim 18, wherein the coil is formed on the base made of resin by insert injection molding.